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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,175	03/19/2001	Hideki Hibino	P 279139 U3-0058-YK	7071

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EXAMINER
STEVENS, MAURICE E

ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/810,175	HIBINO ET AL.	
	Examiner	Art Unit	
	Maurice Stevens	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6 and 10-16* is/are rejected.

7)☒ Claim(s) *4,5 and 7-9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6,10-12, and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukaya et al (EP-0918215-A2).

In regards to claim 1, Fukaya et al disclose a gas sensor measuring a given Component content in a gas comprising, a housing (fig 1, {10}), a sensing unit having a length disposed in said housing, said sensing unit having defined in a first end portion thereof a reference gas chamber to be filed with a reference gas used in providing a sensor signal through a lead which is employed in determining the given gas component content in the gas (fig 1, {2}), a first metallic cover installed on said housing to cover a second end portion of said sensing unit (fig. 1, {11}), a second metallic cover installed on a periphery of said first metallic cover, (fig.1, {12}), a first vent formed in said first metallic cover (fig 1, {110}), a second vent formed in said second metallic cover which communicates with said first vent to admit the reference gas into the reference chamber through a reference gas passage (fig 1, {120}) and an insulating member disposed in said first metallic cover, having formed therein a hole through which the lead passes to connect with said sensing unit, said insulating

member being made of a cylindrical porcelain having an outer peripheral wall which is substantially circular in cross section and which defines the reference gas passage (col 6, lines 18-24, and col 2, lines 15-28).

In regards to claim 2, Fukaya et al disclose a gas sensor wherein said insulating member has a first end surface and a second end surface opposed to the first end surface in a longitudinal direction of the gas sensor parallel to the length of said sensing unit, said insulating member having a through hole extending in a direction of the first end surface to the second end surface to define a portion of the reference gas passage (fig 1, {top and bottom ends of reference number 3}).

In regards to claim 3, Fukaya et al disclose a gas sensor wherein said insulating Member is arranged in alignment with said sensor unit and has a first end surface and a second end surface closer to said sensor unit, said insulating member having a groove formed in the outer peripheral wall which extends from the first vent to the first end surface to define a portion of the reference gas passage (fig 1, {3 is aligned with 2} and fig 5, {115}).

In regards to claim 6, Fukaya et al disclose a gas sensor wherein said insulating member is arranged in alignment with said sensor unit and has a first end surface and a second end surface closer to said sensor unit, said insulating member having a groove formed in the outer peripheral wall which extends from the first vent to the second end surface to define a portion of the reference gas passage (fig 1, {115}).

In regards to claim 10, Fukaya et al disclose a gas sensor wherein said insulating member has formed therein a plurality of lead holes through which leads pass

to connect with said sensing unit, and wherein the reference gas passage is defined at a location where a line passing through a center of said insulating member between adjacent two of the lead holes intersects the outer peripheral wall of said insulating member (col 2, lines 15-16).

In regards to claim 11, Fukaya et al disclose a gas sensor wherein the reference gas passage is defined by a hole formed in said insulating member which extends from a portion of the outer peripheral wall of said insulating member facing the first vent and communicates with the hole through which the lead passes (col 2, lines 15-16).

In regards to claim 12, Fukaya et al disclose a gas sensor wherein said insulating member has formed therein a plurality of lead holes extending in the longitudinal direction of the gas sensor through which leads pass to connect with said sensing unit, and wherein said insulating member has formed therein a lateral hole extending between the lead holes in communication with the through hole extending in the direction of the first end surface to the second end surface of said insulating member to define the reference gas passage (fig 7, {30}).

In regards to claim 14 Fukaya et al disclose a gas sensor wherein said insulating member is arranged in alignment with said sensor unit and has a first end surface and a second end surface closer to said sensor unit, and wherein the reference gas passage is defined by an inner wall of said first metallic cover and a surface of the outer peripheral wall of said insulating member tapering off to the first end surface (It is between the inner wall {11} and peripheral outer wall of {3} ; {115}).

In regards to claim 15, Fukaya et al disclose a gas sensor wherein said insulating member is arranged in alignment with said sensor unit and has a first end surface and a second end surface closer to said sensor unit and wherein the reference gas passage is defined by an inner wall of said first metallic cover and a first and a second annular step formed on the outer peripheral wall of said insulating member, the first annular step being smaller in diameter than the second annular step (col 6, lines 34-39).

In regards to claim 16, Fukaya et al disclose a gas sensor wherein the reference gas passage is defined by a hole formed in said insulating member which extends from a portion of the outer peripheral wall of said insulating member facing the first vent and communicates with the hole through which the lead passes (fig 1, {30}).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukaya et al in view of the admitted prior art.

Fukaya et al does not disclose a gas sensor wherein said insulating member includes a small-diameter portion and a large-diameter portion continuing from the small-diameter portion and has a chamber formed in said insulating member, and wherein the reference gas passage is defined by a through hole formed in said insulating member which extends from a portion of the outer peripheral wall facing the

first vent to the chamber through the small-diameter portion and the large-diameter portion. However in the admitted prior art the applicant shows an example of a gas sensor wherein said insulating member includes a small-diameter portion and a large-diameter portion continuing from the small-diameter portion and has a chamber formed in said insulating member, and wherein the reference gas passage is defined by a through hole formed in said insulating member which extends from a portion of the outer peripheral wall facing the first vent to the chamber through the small-diameter portion and the large-diameter portion (figs 21a and 21).

It would have been obvious to one of ordinary skill in the art to modify Fukaya et al according to the teachings of the admitted prior art for the purpose of using large and small diameters of the porcelain in a gas sensor to define the air gap between the inner wall of the metallic cover and the small diameter portion.

Allowable Subject Matter

Claims 4, 5 and 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurice Stevens whose telephone number is (703) 306-5895. The examiner can normally be reached on M-F, 6:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowertz can be reached on (703) 305-4816. The fax phone

number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MS/2855
8-17-0

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